



Name :

Roll No. :

Invigilator's Signature :

CS/M.TECH(LT)/SEM-1/MLT-102/2011-12

2011

**CHEMISTRY AND TECHNOLOGY OF
LEATHER AUXILIARIES – I**

Time Allotted : 3 Hours

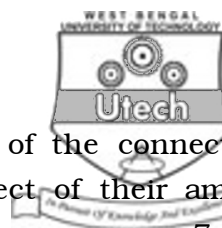
Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any five questions

1. Deduce Kubelka – Munk equation. Discuss its limitations. State how is this equation used for color matching ? 6 + 4 + 4
2. Discuss the principles involved in determination of particle size of the pigment. Find the relationship of particle size with the stability of pigment dispersion. 7 + 7
3. State briefly the process of manufacturing linear silicone. How does it make leather surface water resistant ? The stability of water proofness of silicone is said to be temporary — why ? What can we do to improve performance ? 6 + 4 + 2 + 2
4. Define Glycosaminoglycans (GAGs). Classify GAGs and draw their unique features. Discuss the physiological functions of different GAGs. Draw the structure of the repeating unit of Hyaluronic Acid chain. 2 + 4 + 4 + 4



5. Draw the similarities and dissimilarities of the connective tissues like collagen and elastin in respect of their amino acid content and nature of cross-links. 7 + 7

6. a) Draw the proper schematic presentation of limed collagen from the following :

- i) $\text{NH}_2 - \text{P} - \text{COOH}$
- ii) $\text{NH}_3^+ - \text{P} - \text{COOH}$
- iii) $\text{NH}_3^+ - \text{P} - \text{COO}^-$
- iv) $\text{NH}_2 - \text{P} - \text{COO}^-$

Give the reason of your selection. 4

- b) During deliming, the acidic chemicals used react with alkaline collagen. Give the reaction pattern and justify your answer. 5

- c) If liming causes change in the I.P. of collagen, then comment on the status of pickled pelt in terms of its I.P. 5

7. a) Discuss the feasibility of chrome tannage using a high basic chrome powder rather than simple 33% BCS Powder. What are the different does and don'ts you are to follow ? 7

- b) Discuss the relative affinity of a condensed tan liquor towards

- i) Limed pelt
- ii) Pickled pelts
- iii) Chrome tanned pelt. 7

